



Commonwealth of Massachusetts
Executive Office of Energy & Environmental Affairs

Department of Environmental Protection

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Summary of Innovative/Alternative Technologies Approved for Use in Massachusetts and Under Review

As of **March 2018**

The inclusion in this table of URLs for I/A technology companies does not in any way constitute a recommendation or endorsement by MassDEP. For schematics of any technology, contact the manufacturer.

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Certified for General Use

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Composting Toilets	Compliant with Title 5	Generic	Composting Toilet	Composting toilets as described in Title 5 (310 CMR 15.289(3))
Recirculating Sand Filter	Compliant with Title 5	Generic	Nitrogen Reduction Sand Filter	Nitrogen Reduction For 550 gallons per day per acre: Effluent: TN = 25 mg/L, BOD5 = 30mg/L TSS=30 mg/L, pH: 6-9 For residential <2000 GPD: 50% SAS size reduction Approval: September 9, 2008

This information is available in alternate format. Contact Michelle Waters-Ekanem, Director of Diversity/Civil Rights at 617-292-5751.

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Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Advantex Treatment System	AdvanTex AX20 AX100 AX20-RT AX25-RT	Orenco Systems, Inc. 814 Airway Avenue Sutherlin, OR 97479	Secondary Treatment Unit: for BOD5 and TSS Removal Textile Filter with Aerobic Treatment Process	Secondary Treatment Unit: Effluent: BOD5 = 30m/L, TSS=30 mg/L, pH: 6-9 For resident <2000 GPD: 50% SAS size reduction Approval: April 19, 2013
Amphidrome Treatment System*	Amphidrome Process	F.R. Mahony & Associates, Inc. 273 Weymouth Street Rockland, MA 02370	Secondary Treatment Unit: for BOD5 and TSS Removal. Submerged Attached-Growth Sequencing Bioreactor	Secondary Treatment Unit: Effluent: BOD5 = 30m/L, TSS=30 mg/L pH: 6-9 For resident <2000 GPD: 50% SAS reduction Approval: February 19, 2013
Bioclere*	16, 22, 24, and 30 series	Aquapoint.3 LLC 39 Tarkiln Place New Bedford, MA 02745	Secondary Treatment Unit: for BOD5 and TSS Removal. Trickling Filter	Secondary Treatment Unit: Effluent: BOD5 = 30m/L, TSS=30 mg/L pH: 6-9 For resident <2000 GPD: 50% SAS size reduction Approval: April 2, 2015
BioDiffuser and ARC Chambers	BioDiffuser 11" Standard, BioDiffuser 14" High Capacity, BioDiffuser 16" High Capacity, BioDiffuser 15" Narrow (Bio 2), BioDiffuser 22" Narrow (Bio 3), ARC 36, ARC 36HC, ARC 50, ARC 18, ARC 24, ARC 36 LP (3.8 inch-invert), and ARC 36 LP (8 inch-invert)	Infiltrator Water Technologies, LLC P.O. Box 768 4 Business Park Road Old Saybrook, CT 06475	Alternative SAS (Disposal Only) Open-Bottom Leaching Unit	Alternate SAS (Disposal Only) Trench, bed, field, or gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 (310 CMR 15.242) Approval: June 12, 2015

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Bio-Microbics MicroFAST*	FAST Treatment Systems with Nitrogen Reduction MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5, 9.0 ; HighStrengthFAST® 1.0, 1.5, 3.0, 4.5, 9.0; NitriFAST® 0.5, 0.75, 1.0, 1.5, 3.0, 4.5, 9.0	Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227	Secondary Treatment Unit: for BOD5 and TSS Removal. Aerobic Treatment Unit	Secondary Treatment Unit Effluent: BOD5 = 30m/L, TSS=30 mg/L pH: 6-9 For resident <2000 GPD: 50% SAS size reduction Approval: February 19, 2013
BUSSE-MF System	Models B-220, 440, 660, 880, 1000, 1500, 2000	Busse Green Technologies Inc. 1101 South Euclid Ave. Oak Park, IL 60304	Secondary Treatment Unit: for BOD5 and TSS Removal: Activated sludge process and a membrane process (biological-filtration)	Secondary Treatment Unit Effluent: BOD5 = 30m/L, TSS=30 mg/L pH: 6-9 For resident <2000 GPD: 50% SAS size reduction Approval: February 19, 2013
Clean Solution Treatment System*	250, 250 Integral, 250PT, 250ST3, 250ST4, 600, 1000, 1750, 2500, 3100 and 10000	Wastewater Alternatives, Inc. 2 Whitney Road, Suite 10 Concord, NH 03301	Secondary Treatment Unit: for BOD5 and TSS Removal: Biological Treatment Unit	Secondary Treatment Unit Effluent: BOD5 = 30mg/L, TSS=30 mg/L pH:6-9 For residential <2,000 GPD: 50% SAS size reduction Approval: April 30, 2013
Cultec Chambers	EZ-24; Contactor C4; Recharger 180, 280 and 330XL	Cultec, Inc. PO Box 280, 878 Federal Road Brookfield, CT 06804	Alternative SAS (Disposal Only) Open-Bottom Leaching Unit with Non-Woven Geosynthetic Filter	Alternate SAS (Disposal Only) Trench, Bed, Field, or Gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 (310 CMR 15.242) Approval: March 31, 2016

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Cur-Tech CLT	CLT-12 and CLT-18	Cur-Tech LLC 23 Ryan Street Stamford, CT 06907	Alternative SAS (Disposal Only) Open-Bottom Leaching Unit with Plastic Fin	Alternative SAS (Disposal Only) Trench, Bed, Field, or Gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 (310 CMR 15.242) Approval: March 31, 2017
Eljen In-Drain Systems	Type B43 and A42	Eljen Corporation 125 McKee Street East Hartford, CT 06108	Alternative SAS (Treatment with Disposal) Modular Absorption System	Alternate SAS (Treatment with Disposal) Trench, Bed, Field, or Gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 (310 CMR 15.242) Approval: March 19, 2013
Eljen Mantis M5 System	Mantis 5.1, Mantis 5.1 LowPro (LP), Mantis 5.2, Mantis 5.2 LowPro (LP)	Eljen Corporation 125 McKee Street East Hartford, CT 06108	Alternative SAS (Disposal Only) Passive Graveless Wastewater Disposal System	Alternate SAS (Disposal Only) Trench, Bed, Field, or Gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 Approval: August 21, 2014
EZ Flow Polystyrene Aggregate System	EZ1202V, EZ1203T, EZ1203H, EZ1402V, EZ1203 Bed, EZ1203 Mound	Infiltrator Water Technologies, LLC P.O. Box 768 4 Business Park Road Old Saybrook, CT 06475	Alternative Aggregate	Alternate Aggregate Trench, Bed, Field or Gallery configurations. No SAS size reduction. Effluent loading rates specified in Title 5 Approval: June 12, 2015

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Geoflow Subsurface Drip Wastewater Disposal System	Classic WF 16 and WF Special Order and WFPC 16 and WFPC Special Order series	Geoflow Inc. 506 Tamal Plaza Corte Madera, CA 94250	Pressure Distribution System (Subsurface)	Dispersal Unit Equivalent to pressure distribution. Can be placed in A, B, or C horizon a minimum of six inches below grade. The System does not require a five foot over dig as indicated at 310 CMR 15.255(5). For residential systems <2,000 GPD, can reduce the size of the SAS by up to 50% Approval: March 20, 2015
Hoots Aerobic Systems	Hoots Aerobic H-Series H-500A, H-600A, H-750A and H-1000A	Hoots Aerobic Systems Inc. 2885 Highway 14 East Lake Charles, LA 70607	Secondary Treatment Unit: BOD5 and TSS Removal: Aeration device with indigenous bacteria	Secondary Treatment Unit Effluent: BOD5 = 30mg/L; TSS=30 mg/L; pH: 6-9 Approval: February 19, 2013
Infiltrator Chambers	Quick4; Infiltrator 3050 (Storm Tech SC-740); Equalizer 24; Equalizer 36	Infiltrator Water Technologies, LLC P.O. Box 768 4 Business Park Road Old Saybrook, CT 06475	Alternative SAS (Disposal Only) Open bottom leaching unit molded from polyolefin resin. It can be installed without aggregate or distribution pipe as an absorption trench/bed/field	Alternate SAS (Disposal Only) Trench, Bed, Field, or Gallery configurations: 40% reduction in size Effluent loading rates specified in Title 5 (310 CMR 15.242). Approval: June 12, 2015

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Infiltrator TW and IM Series Septic Tanks	TW-1050 (1,050 gallon), TW-1250 (1,250 gallon), TW-1500 (1,500 gallon), IM-1060 (1,094 gallon), and IM-1530 (1,509 gallon)	Infiltrator Water Technologies, LLC P.O. Box 768 6 Business Park Road Old Saybrook, CT 06475	Polyolefin septic tanks TW-series septic tanks are rotational molded multi-layered corrugated polyethylene or polypropylene. IM-series tanks are injection molded single layer corrugated polyethylene or polypropylene	Equivalent to conventional septic tank. Exempt from requirements for 3 manholes, and four-foot liquid depth. Two-compartment tank exempt from requirement for U-shaped pipe inter-connection. Approval: June 12, 2015
JET Inc. 1500 Series BAT Media Wastewater Treatment*	J-500, J-750, J-1000, J-1250, and J-1500 J-500-PLT & J-800-PLT	Clearwater Recovery 175 Spring Street Rockland, MA 02370	Secondary Treatment Unit: BOD5 and TSS Removal: Aerobic treatment process with primary settling zone, aerobic zone with fixed media, and a secondary clarifying zone to treat wastewater	Secondary Treatment Unit Effluent: BOD5 = 30mg/L TSS=30 mg/L; pH:6-9 For residential <2,000 GPD: 50% SAS reduction for system Approval: August 31, 2017
Mantis M5 System	Mantis 5.1, Mantis 5.1 LowPro (LP), Mantis 5.2, and Mantis 5.2 LowPro (LP) Residential only <2,000 GPD	Eljen Corporation 125 McKee Street East Hartford, CT 06108	Alternative SAS (Disposal Only) Passive gravel-less wastewater disposal system. Filter support modules wrapped in Bio-Mat, geotextile fabric and surrounded by C-33 sand	Alternative SAS (Disposal-Only) Alternative SAS in trench, bed, or gallery configurations with 40% reduction in size with effluent loading rates specified in Title 5 Approval: August 21, 2014

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Perc-Rite Drip System	QM (WD), ASD-15, ASD-25, and ASD-40	American Manufacturing Co. Inc. PO Box 549 Manassas, VA 20108	Alternative SAS Subsurface drip dispersal)	Dispersal Unit Equivalent to pressure distribution. Can be placed in A, B, or C horizon a minimum of six inches below grade. The System does not require a five foot over dig as indicated at 310 CMR 15.255(5). For residential systems <2,000 GPD, can reduce the size of the SAS by up to 50% Approval: November 23, 2016
Polyethylene Septic Tanks	1,000 gallons; 1,250 gallons; 1,500 gallons low profile one/two compartment with gasket and tee	Norwesco, Inc./Snyder Industries PO Box 439 St Bonifacius, MN 55375-0439	Low profile polyethylene septic tanks with gasket and tee	Equivalent to conventional septic tank. Exempt from requirements for 3 manholes, four-foot liquid depth, and pumping on an annual basis. Two-compartment tank exempt from requirement for U-shaped pipe inter-connection. Approval: March 19, 2013
Presby Enviro-Septic Wastewater Treatment System	Enviro-Septic	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed * Bed installations only	Alternative SAS - Patented Sand Filter 40% reduction in size of SAS with effluent loading rates specified in Title 5 (310 CMR 15.242). Approval: March 19, 2013

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Presby Advanced Enviro-Septic (Alternative SAS) Wastewater Treatment System	Advanced Enviro-Septic	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed * Bed installations only	Alternative SAS with Secondary Treatment for 40% size reduction with the effluent loading rates specified in Title 5 (310 CMR 15.242). Approval: August 12, 2013
Presby Advanced Enviro-Septic (Alternative SAS with Treatment) Wastewater Treatment System	Advanced Enviro-Septic (with 12 inches C-33 sand) <880 GPD, residential only	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed, with 12 inches of C-33 sand below pipe units. *Bed installations only	Alternative SAS with Secondary Treatment 50% reduction in size of SAS with the effluent loading rates specified in Title 5 (310 CMR 15.242) Effluent limits: BOD: 30 mg/L; TSS: 30 mg/L; pH: 6 to 9 Turbidity: <40 NTU; DO: >2 mg/L Approval: December 17, 2013
ProStep Effluent Pumping System	ProStep PSA-X and PSB-X, and Biotube® Pump Vault PVU-X and PV-X	Orenco Systems, Inc. 814 Airway Ave. Sutherlin, OR 97479	Effluent filtering and pumping with pump vault, placed in outlet end of septic tank	Equivalent to conventional pumping system Approval: March 20, 2015
Roth Global SEPTECH** ** this replaces FRALO SEPTEC poly tanks	Roth Multi-Tank Model RMT 1060, 1250, and 1500	Roth Global Plastics, Inc. PO Box 2451 One General Motors Drive Syracuse, NY 13206	Single or Two Compartment Polyethylene Septic Tanks Installed between building sewer and distribution box and SAS or between building sewer and DEP approved I/A treatment unit.	Equivalent to conventional septic tank Approval: March 20, 2015

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
RUCK	Systems less than 2000 gpd	Innovative RUCK Systems, Inc. 362 Gifford Street Falmouth, MA 02540	Filter	Equivalent to conventional septic tank Exempt from three manholes, four-foot liquid depth, and annual pumping requirements. The two compartment are exempt from U-shaped pipe inter-connection requirement. Shall not be installed in a vehicle traffic area Approval: March 20, 2015
SeptiTech Treatment Systems by Bio-Microbics of Maine, Inc.	SeptiTech Models 400, 550, 750, 1200, 1500, 3000 and SeptiTech Engineered Systems	SeptiTech, Inc. 70 Commercial Street, Suite 3 Lewiston, ME 04240	Secondary Treatment Unit Recirculating Trickling Filter. Installed after a T5 septic tank with effluent tee filter and prior to T5 SAS	Secondary Treatment Unit Effluent: BOD5 = 30mg/L TSS=30 mg/L; pH:6-9 For residential <2,000 GPD: 50% SAS size reduction Approval: July 8, 2013
Simple-Septic Wastewater Treatment System	Simple-Septic	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed	Alternative SAS - Patented Sand Filter Treatment with Disposal 40% reduction in size of SAS with the effluent loading rates specified in Title 5 Approval: September 11, 2014

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Singulair Bio-Kinetic Wastewater Treatment System	Singulair 960 -500, 600, 750, 1000, 1250 and 1500. Singulair TNT-500, 600, 750, 1000, 1250 and 1500. Singulair Green (plastic tank): Green 960-500, 600; Green TNT-500, 600	NORWECO, Inc. 220 Republic Street Norwalk, OH 44857	Secondary Treatment Unit (STU) Three compartment tank with a pretreatment chamber, aerobic chamber, and settling/filtration chamber with Bio-Kinetic filter unit. TNT models remove nitrogen using timed aerobic and anaerobic periods in the second chamber. Installed between building sewer and SAS	Secondary Treatment Unit Effluent: BOD5 = 30mg/L TSS=30 mg/L; pH:6-9 For residential <2,000 GPD: 50% SAS size reduction Approval: February 26, 2013
Sludgehammer	Sludgehammer ABG, models S-46 and S-86	Sludgehammer Group Ltd 336 Division Road Petoskey, MI 49770	SAS Aeration with Bacterial Augmentation	To enhance and maintain performance of properly functioning SAS where conventional system with reserve area exists or can be built on-site in full compliance with T5. No SAS size reduction. Flow <2,000 GPD Approval: April 2, 2015
Smith & Loveless FAST System	Modular FAST	Smith & Loveless, Inc. 14040 Santa Fe Trail Drive Lenexa, KS 66215	Secondary Treatment Unit: Aerobic treatment unit with submerged fixed film media.	Effluent: BOD5 = 30mg/L TSS=30 mg/L; pH:6-9 No reduction in size of SAS allowed Approved where conventional system with reserve area exists or can be built on-site in full compliance with T5 Flow:2,000 to <10,000 GPD Approval: November 5, 2015

Technology	Model(s)	Company	Technology Description	Approved Use & Approval Date
Waterloo Biofilter	Biofilter <10,000 GPD	Waterloo Biofilter System, Inc. 143 Dennis Street Rockwood, NT, N0B 2K0	Secondary Treatment Unit: Absorbent Trickling Filter with optional recirculation. Installed following a T5 septic tank with a screened pump vault or a T5 septic tank and separate pump tank, discharges to SAS	Effluent: BOD5 = 30mg/L TSS=30 mg/L; pH:6-9 For residential <2,000 GPD: 50% SAS size reduction Approval: November 1, 2012

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Certified for Provisional Use

Technology	Model(s)	Company	Technology Description	Approved Use
Advantex	Advantex AX20, AX20-RT, AX25-RT, AX100 <10,000 GPD	Orenco Systems, Inc. 814 Airway Avenue Sutherlin, OR 97479	STU and Nitrogen reduction Two compartments UV protected fiberglass reinforced plastic treatment tank and aerobic textile filter module with recirculation	Nitrogen reduction BOD <30 mg/L; TSS <30 mg/L; pH 6-9 For new construction <2,000 GPD subject to Nitrogen Loading: 660 GPD/acre w/ TN <19 mg/l 550 GPD/acre w/ TN <25 mg/l For systems >2,000 to <10,000 GPD: TN <25 mg/L Approval: August 31, 2015
Amphidrome	Amphidrome Process <10,000 GPD	F.R. Mahony & Associates, Inc. 273 Weymouth Street Rockland, MA 02370	STU and Nitrogen reduction Submerged Attached-Growth Sequencing Bioreactor consisting of anoxic/equalization tank, reactor tank with granular biological filter, alternating aerobic/anaerobic cycles, and a clear well	Nitrogen reduction BOD <30 mg/L; TSS <30 mg/L; pH 6-9 For new construction <2,000 GPD subject to Nitrogen Loading: 660 GPD/acre w/ TN <19 mg/l 550 GPD/acre w/ TN <25 mg/l For systems >2,000 to <10,000 GPD: TN <25 mg/L Approval renewed: October 15, 2015

Technology	Model(s)	Company	Technology Description	Approved Use
Bioclere NOTE: Bioclere has reached the maximum allowed installations under this Approval only.	16/12, 16/15, 16/19, 16/22, 16/25 and 24 Series <2,000 GPD	Aquapoint.3 LLC 39 Tarkiln Place New Bedford, MA 02745	STU and Nitrogen reduction: Trickling filter in fiberglass tank with clarifier and recycle of settled solids to septic tank. Chemical addition if required for carbon source, alkalinity and pH control, and/or phosphorus precipitation. Installed in series between T5 septic tank and SAS	Nitrogen reduction BOD <30 mg/L; TSS <30 mg/L; pH 6-9 For new construction <2,000 GPD subject to Nitrogen Loading: 660 GPD/acre w/ TN <19 mg/l 550 GPD/acre w/ TN <25 mg/l Approval: September 17, 2015.
Bioclere	24, 30, and 36 Series 2,000 GPD to <10,000 GPD	Aquapoint.3 LLC 39 Tarkiln Place New Bedford, MA 02745	STU and Nitrogen reduction: Trickling filter in fiberglass tank with clarifier and recycle of settled solids to septic tank. Chemical addition if required for carbon source, alkalinity and pH control, and/or phosphorus precipitation. Installed in series between T5 septic tank and SAS	Nitrogen reduction BOD5, TSS, Nitrogen, and Phosphorus reduction For systems >2,000 to <10,000 GPD: Effluent limit: TN <25 mg/L Effluent limits in a NSA: BOD <30 mg/L; TSS <30 mg/L; pH 6-9 Approval: October 29, 2015

Technology	Model(s)	Company	Technology Description	Approved Use
FAST with Nitrogen Reduction by Bio-Microbics, Inc.	MicroFAST with Nitrogen Reduction: MicroFAST 0.5, 0.75, 0.9, 1.5, 3.0, 4.5, and 9.0; HighStrengthFAST 1.0, 1.5, 3.0, 4.5, and 9.0; and NitriFAST 0.5, 0.75, 1.0, 1.5, 3.0, 4.5, and 9.0. Residential >2,000 to <10,000 GPD Non-residential <10,000 GPD	Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227	STU and Nitrogen reduction: Aerobic submerged fixed film media unit with passive recycle to anoxic zone for denitrification. Chemical feed for alkalinity control and carbon source if required. Installed between building sewer and T5 SAS, inside second compartment of a T5 septic tank. Models for larger flows installed in a secondary tank after a T5 septic tank (with recycle to septic tank for denitrification)	BOD5, TSS, and Nitrogen reduction For new construction <2,000 GPD subject to Nitrogen Loading: Non-residential- can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l For systems >2,000 to <10,000 GPD: Effluent limit: TN <25 mg/L Effluent limits in a NSA: BOD <30 mg/L TSS <30 mg/L pH 6-9 Increase in Nitrogen Loading limit to 550 GPD/acre allowed w/ TN <25 mg/L May be substituted for RSF Approval: July 28, 2015
Nitrex	Nitrex Filters <10,000 GPD	Lombardo Associates, Inc 49 Edge Hill Road Newton, MA 02467	STU and Nitrogen reduction Filter with nitrate reactive media. Includes effluent recycle over media and alkalinity feed if required. Installed in series after approved I/A technology providing nitrifying pretreatment and	Nitrogen reduction BOD <30 mg/L; TSS <30 mg/L; pH 6-9 For new construction <2,000 GPD subject to Nitrogen Loading: 660 GPD/acre w/ TN <19 mg/l 550 GPD/acre w/ TN <25 mg/l For systems >2,000 to <10,000 GPD: TN <25 mg/L Approval: May 22, 2014

Technology	Model(s)	Company	Technology Description	Approved Use
SeptiTech Treatment Systems by Bio-Microbics of Maine, Inc.	400N, 550N, 750N, 1200N, 1500N, 2500N, 3000N, and SeptiTech Engineered Systems	SeptiTech, Inc 220 Lewiston Road Gray, ME 04039	Secondary Treatment Unit: Enhanced recirculating trickling filter with anoxic phase. Two compartment tank- 1st anoxic compartment and 2nd contains trickling filter media with recirculation within trickling filter and to anoxic tank. System installed between building sewer and SAS	Nitrogen reduction BOD <30 mg/L; TSS <30 mg/L; pH 6-9 For new construction <2,000 GPD subject to Nitrogen Loading: 660 GPD/acre w/ TN <19 mg/l 550 GPD/acre w/ TN <25 mg/l For systems >2,000 to <10,000 GPD: TN <25 mg/L Approval: November 20, 2017
Singulair	Singulair 960 -500, 960-600, 960-750, 960-1000, 960-1250 and 960-1500. Singulair TNT-500, TNT-600, TNT-750, TNT-1000, TNT-1250 and TNT-1500. Singulair Green (plastic tank): Green 960-500, 960 -600, Green TNT-500 and Green TNT-600	NORWECO, Inc. 220 Republic Street Norwalk, OH 44857	Secondary Treatment Unit: Extended aeration, activated sludge, and filtration in three compartment tank. 1st - anaerobic pretreatment chamber; 2nd - aerobic chamber; 3rd – settling and clarification chamber with activated sludge recycle to aerobic chamber; followed by recirculation chamber with 12-18% recycle to 1st chamber. System installed between building sewer and SAS. Systems >1,000 GPD require T5 septic tank for pretreatment	BOD, TSS, and Nitrogen Reduction For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Any facility- can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l Approval: October 11, 2017

Technology	Model(s)	Company	Technology Description	Approved Use
Smith & Loveless Modular FAST	Modular FAST 2,000 to 10,000 gpd	Smith & Loveless, Inc 14040 Santa Fe Trail Drive Lenexa, KS 66215	Aerobic treatment unit with fixed film submerged media and optional denitrification components (recycle to septic tank or anoxic tank). Installed between T5 septic tank and SAS	BOD, TSS, and Nitrogen Reduction Effluent limits in a NSA: BOD <30 mg/L; TSS <30 mg/L; pH 6-9 Effluent limit for all systems: TN <25 mg/L Increase in Nitrogen Loading limit to 550 GPD/acre allowed w/ TN <25 mg/L May be substituted for RSF Approval: May 22, 2014
Waterloo Biofilter	Biofilter < 2,000 gpd	Waterloo Biofilter System, Inc 143 Dennis Street Rockwood, ON N0B 2K0	Absorbent Trickling Filter with min. 50% recycle to septic tank for denitrification. Installed following a T5 septic tank with a screened pump vault or a T5 septic tank and separate pump tank, discharges to SAS	BOD, TSS, and Nitrogen Reduction For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l; Any facility- can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l Approval: May 22, 2014
Waterloo Biofilter	Biofilter 2,000 to <10,000 gpd	Waterloo Biofilter System, Inc 143 Dennis Street Rockwood, ON N0B 2K0	Absorbent Trickling Filter with min. 50% recycle to septic tank for denitrification. Installed following a T5 septic tank with a screened pump vault or a T5 septic tank and separate pump tank, discharges to SAS	BOD, TSS, and Nitrogen Reduction Effluent limits in a NSA: BOD <30 mg/L; TSS <30 mg/L; pH 6-9 Effluent limit for all systems: TN <25 mg/L Increase in Nitrogen Loading limit to 550 GPD/acre allowed w/ TN <25 mg/L May be substituted for RSF Approval: May 22, 2014

Approved for Piloting

Technology	Model(s)	Company	Technology Description	Approved Use
BioBarrier MBR and HSMBR	BioBarrier MBR models 0.5-N, 1.0-N, 1.5-N, 2.0-N, and BioBarrier HSMBR 1.5-SN, 1.5-DN, 3.0-SN, 3.0-DN, 4.5-SN, 4.5-DN, 6.0-SN, 6.0-DN, 9.0-SN, 9.0-DN <10,000 GPD	Biomicrobics Inc. 8450 Cole Parkway Shawnee, KS 66227	Secondary Treatment Unit: Primary sedimentation, anaerobic, and aerobic compartments with a membrane bioreactor (MBR) and recirculation	BOD-5, TSS, fecal coliform, and Nitrogen Reduction Effluent Limits: BOD5 <30 mg/l; TSS <30 mg/l Turbidity <40 NTU For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Non-residential - can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l Exempt from requirements for T5 compliant septic tank. Approval: July 11, 2016
ECOPOD - N	E50-N, E60-N, E75-N, E100-N, E150-N <1,500 GPD	Delta Environmental - Pentair Water 8274 Florida Blvd Denham Springs, LA 70726	Aerobic and anaerobic chambers with recirculation and attached growth media	BOD5, TSS, and Nitrogen Reduction Effluent Limits: BOD5 <30 mg/l TSS <30 mg/l Turbidity <40 NTU For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Non-residential- can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l; Exempt from requirements for T5 compliant septic tank. Approval: August 21, 2014

Technology	Model(s)	Company	Technology Description	Approved Use
Fuji Clean USA	CEN5, CEN7, CEN10 <900 GPD	Fuji Clean USA, LLC 41-2 Greenwood Road Brunswick, Maine 04011	Secondary Treatment Unit: Sedimentation, aerobic and anaerobic chambers with recirculation and attached growth media	BOD5, TSS, and Nitrogen Reduction Effluent Limits: BOD5 <30 mg/l; TSS <30 mg/l Turbidity <40 NTU For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Non-residential - can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l; Exempt from requirements for T5 compliant septic tank Approval: November 3, 2015
GPC Filter	GPC Filter <10,000 GPD	Ground Penetrating Carbon, Inc. 205 Worcester Court Falmouth, MA 02540	Stratified bottom drained sand filter treatment system with carbon addition	BOD, TSS, and Nitrogen Reduction Approval: December 8, 2014
Hydro-Kinetic Wastewater Treatment System	Model 600 FEU <600 GPD	NORWECO, Inc. 220 Republic Street Norwalk, OH 44857	Extended aeration and attached growth processes with anoxic tank	BOD5, TSS, and Nitrogen Reduction Effluent Limits: BOD5 <30 mg/l; TSS <30 mg/l Turbidity <40 NTU For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Non-residential - can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l Exempt from requirements for T5 compliant septic tank Approval: August 23, 2013

Technology	Model(s)	Company	Technology Description	Approved Use
PhosRID	PhosRID Phosphorus Removal System <10,000 GPD	Lombardo Associates, Inc. 49 Edge Hill Road Newton, MA 02467-1170	Reductive Iron Dissolution (RID) media anaerobic upflow filter followed by oxygenation filter To reduce total phosphorus	Phosphorus removal Approval: February 24, 2014
RetroFAST System	Models 0.15, 0.25, 0.375 <2,000 GPD Residential strength	Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227	SAS remediation by enhanced aerobic attached growth treatment in existing septic tank	SAS remediation BOD5 and TSS removal -Separation to GW shall not be less than 2/3 ft -Size of SAS shall not be <50% of T5 requirements Approval: June 5, 2014
RUCK	CFT System <10,000 GPD	North Coast Technologies, LLC 200 Main Street, Suite 201 Falmouth, MA 02540	Aerobic RUCK filter followed by anaerobic mixing chamber (with carbon addition) for denitrification	BOD5, TSS, and Nitrogen Removal For new construction <2,000 GPD subject to Nitrogen Loading: Residential- can increase N loading limit to 660 GPD/acre w/ TN <19 mg/l Non-residential - can increase N loading limit to 550 GPD/acre w/ TN <25 mg/l Approval: December 11, 2012
Waterloo EC-P	Waterloo EC-P <10,000 GPD	Waterloo Biofilter System, Inc 143 Dennis Street, P.O. Box 400 Rockwood, ON N0B 2K0	Precipitation of Phosphorus with Iron	Phosphorus reduction Approval: March 19, 2014

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Approved for Remedial Use

Technology	Model(s)	Company	Technology Description	Approved Use
Composting Toilets	Compliant with Title 5	Generic	Composting Toilet	Composting toilets as described in Title 5 (310 CMR 15.289(3))
Bottomless Sand Filters	Compliant with Title 5 <880 GPD Residential only	Generic	Sand Filter	BOD5 and TSS removal Reduction in size of SAS; up to two foot reduction in depth of naturally occurring pervious material Secondary treatment prior to BSF required Approval: June 26, 2012
Recirculating Sand Filters	Recirculating Sand Filter (RSF) <10,000 GPD	Generic	Sand Filter	BOD5, TSS, and Nitrogen removal Up to 50% reduction in size of SAS; up to two foot reduction in separation to groundwater; up to two foot reduction in depth of naturally occurring pervious material Pressure distribution required Approval: March 10, 2008
AdvanTex Treatment Systems	AX20-RT, AX25-RT, AX20 and AX100 <10,000 GPD	Orenco Systems, Inc. 814 Airway Avenue Sutherlin, OR 97479	Secondary Treatment Unit Textile media aerobic treatment	BOD5 and TSS removal For 6 bedrooms or less, AX20 exempt from Title 5 Septic System requirements Approval: April 19, 2013
Aerobic Recovery System(TM) Septic Restoration Process (formerly Aero-Stream)	Models 101, 102, 103 and 104 <2,000 GPD	Aero-Stream LLC On-Site Treatment Systems(TM) W300 N7706 Christine Lane Hartland, WI 53029	SAS Aeration with Bacterial Augmentation	Restoration of failed SAS Approval: February 2, 2016

Technology	Model(s)	Company	Technology Description	Approved Use
Amphidrome	Amphidrome Process <10,000 GPD	F.R. Mahony & Associates, Inc. 273 Weymouth Street Rockland, MA 02370	Secondary Treatment Unit: Submerged Attached-Growth Sequencing Bioreactor	BOD ₅ , TSS, and Nitrogen removal Exempt from the requirements for a standard Title 5 septic tank designed in accordance with 310 CMR 15.223(1) and 15.224 Approval: November 5, 2012
Bioclere	16, 22, 24, and 30 series	Aquapoint.3 LLC 39 Tarkiln Place New Bedford, MA 02745	Secondary Treatment Unit: Trickling Filter	BOD ₅ and TSS removal Approval: November 5, 2012
BUSSE-MF System	Models B-220, 440, 660, 880, 1000, 1500, 2000 <2,000 GPD	Busse Green Technologies Inc. 1101 South Euclid Ave. Oak Park, IL 60304	Secondary Treatment Unit: Activated sludge process and a membrane process (biological-filtration)	BOD ₅ and TSS removal The requirements in 310 CMR 15.223(1) 'Septic Tanks' and 310 CMR 15.224 'Multiple Compartment Tanks' do not apply to the System, unless the system design incorporates a separate existing or new septic tank Approval: November 5, 2012
The Clean Solution Treatment System	250ST-R3, 250ST-R4, 250-RX, 250PT-RX, C-SAN600, C-SAN100, C-SAN2500, C-SAN3000, C-SAN400 and C-SAN8000	Wastewater Alternatives of New England, LLC 2 Whitney Road, Suite 10 Concord, NH 03301	Secondary Treatment Unit: Submerged media attached-growth biological treatment unit	BOD ₅ and TSS removal Models 250ST-R3 and 250ST-R4 are exempt from Title 5 septic tank requirements Approval: November 5, 2012

Technology	Model(s)	Company	Technology Description	Approved Use
Presby Enviro-Septic Wastewater Treatment System	Enviro-Septic System <10,000 GPD	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed * Bed installations only	Alternative SAS with BOD/TSS reduction and 40% reduction in size with the effluent loading rates specified in Title 5. Depth to groundwater may be reduced by two feet. Depth of naturally occurring pervious material may be reduced by two feet. Has to meet siting requirements for upgrades (310 CMR 15.242) Approval: September 26, 2014
Fuji Clean USA	CEN5 (<450 GPD), CEN7 (>450 – 630 GPD), CEN10 (>630 – 900 GPD)	Fuji Clean USA, LLC 41-2 Greenwood Road Brunswick, Maine 04011	Secondary Treatment Unit: Primary sedimentation chamber, anaerobic treatment chamber (with submerged media), and aerobic contact / filtration chamber (with submerged media)	BOD, TSS, and Nitrogen Reduction Exempt from Title 5 septic tank requirements Approval: November 3, 2015
Presby Advanced Enviro-Septic (Alternative SAS) Wastewater Treatment System	Advanced Enviro-Septic System <10,000 GPD	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed * Bed installations only	Approved for facilities where a conventional T5 system with reserve area exists or can be built on-site in full compliance with T5. Alternative SAS with Secondary Treatment for 40% size reduction with the effluent loading rates specified in Title 5 (310 CMR 15.242). Approval: August 12, 2013

Technology	Model(s)	Company	Technology Description	Approved Use
Presby Advanced Enviro-Septic (Alternative SAS with Treatment) Wastewater Treatment System	Advanced Enviro-Septic System Approved for residential installations <880 GPD	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter - Secondary Treatment with Disposal Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed * Bed installations only	Alternative SAS with Secondary Treatment for 50% size reduction with the effluent loading rates specified in Title 5 (310 CMR 15.242) 400 sq. ft. min. leaching area not applicable Has to meet siting requirements for upgrades Approval: December 17, 2013
Eljen In-Drain Systems	Type B43 and A42 <10,000 GPD	Eljen Corporation 125 McKee Street East Hartford, CT 06108	Alternative SAS, Patented Sand Filter: Geotextile Sand Filter	Alternative SAS in trench, bed, or gallery configurations with 40% reduction in size with effluent loading rates specified in Title 5 (310 CMR 15.242). Depth to groundwater may be reduced by two feet. Depth of naturally occurring pervious material may be reduced by two feet Approval: March 19, 2013
Hoot Aerobic Systems	Hoot Aerobic H-Series H-500A, H-600A, H-750A and H-1000A <1,000 GPD residential strength wastewater	Hoot Aerobic Systems Inc. 2885 Highway 14 East Lake Charles, LA 70607	Secondary Treatment Unit: Pretreatment tank, aeration chamber and clarifier	BOD5 and TSS removal Exempt from septic tank requirements of 310 CMR 15.223 and 15.228 Approval: November 5, 2012

Technology	Model(s)	Company	Technology Description	Approved Use
Jet BAT Media Wastewater Treatment Plants	J-500, J-500-PLT, J-750, J-800-PLT, J-1000, J-1250 and J-1500 Approved for residential facilities only	JET Inc. 750 Alpha Drive Cleveland, OH 44143	Secondary Treatment Unit: Primary settling zone, aerobic treatment with fixed media, and a secondary clarifying zone	BOD5 and TSS removal Models J-500 and J-750 exempt from septic tank requirements of 310 CMR 15.223 and 15.224 Flow<10,000 GPD Approval: August 31, 2017
Low-Rate Intermittent Sand Filter	Low Rate Intermittent Sand Filter <10,000 GPD	Saneco, Inc. Box 9B 65 Eastern Avenue Essex, MA 01929	Secondary Treatment Unit: Screened pump vault (in existing septic tank), Intermittent Sand Filter and pump chamber	BOD5 and TSS removal flow<10,000 GPD Approval: November 5, 2012
MicroFAST	MicroFAST, High Treatment System Models MicroFAST® 0.5, 0.75, 0.9, 1.5, 3.0, 4.5 and 9.0; HighStrengthFAST® Treatment System Models HighStrength FAST® 1.0, 1.5, 3.0, 4.5 and 9.0 and NitriFAST® Treatment System Models NitriFAST® 0.5, 0.75, 1.0, 1.5, 3.0, 4.5 and 9.0 <10,000 GPD	Bio-Microbics, Inc. 8450 Cole Parkway Shawnee, KS 66227	Secondary Treatment Unit: Primary settling zone, aerobic treatment with fixed media, and a secondary clarifying zone	BOD ₅ and TSS removal Approval: November 5, 2012
Modular FAST	Modular FAST	Smith & Loveless, Inc. 14040 Santa Fe Trail Drive Lenexa, KS 66215	Secondary Treatment Unit: Aerobic Treatment Unit with fixed media	BOD5 and TSS removal <10,000 GPD Approval: November 5, 2012

Technology	Model(s)	Company	Technology Description	Approved Use
Perc-Rite Drip Dispersal System	Models: QM(WD) ASD-15, ASD-25, & ASD-40	American Manufacturing Co. Inc. 22011 Greenhouse Rd Elkwood, VA 22718	Alternative SAS: Subsurface drip dispersal	Equivalent to pressure distribution Can be placed in A, B, or C horizon a minimum of six inches below grade The System does not require a five foot over dig as indicated at 310 CMR 15.255(5). <10,000 GPD Approval: March 20, 2015
Puraflo	Puraflo Peat Fiber Biofilter <10,000 GPD	Bord na Mona Environmental Products U.S. Inc. 4106 Bernau Avenue Greensboro, NC 27407	Secondary Treatment Unit: Peat Fiber Biofilter (following septic tank), discharges via pressure distribution to SAS	BOD5 and TSS removal Approval: November 5, 2012
SeptiTech Treatment Systems by Bio-Microbics of Maine, Inc.	SeptiTech 400, 550, 750, 1200, 1500, 3000, and SeptiTech Engineered Systems <10,000 GPD	SeptiTech, Inc. 220 Lewiston Road Gray, ME 04039	Secondary Treatment Unit: Recirculating Trickling Filter	BOD ₅ and TSS removal Approval: July 8, 2013
Simple-Septic Wastewater Treatment System	Simple-Septic <10,000 GPD	Presby Environmental Inc. 143 Airport Road Whitefield, NH 03598	Alternative SAS: Patented Sand Filter Perforated corrugated pipe wrapped with geotextile fabric, placed in a sand bed	Alternative SAS - Patented Sand Filter for Treatment with Disposal -40% reduction in effective leaching area of SAS ; -Two foot reduction of separation to groundwater; -Two foot reduction of naturally occurring pervious material Approval: September 11, 2014
Singulair Bio-Kinetic Wastewater Treatment System	Singulair and Singulair Green models <1,500 GPD	NORWECO, Inc. 220 Republic Street Norwalk, OH 44857	Secondary Treatment Unit: Aerobic Treatment and Bio-Kinetic System	BOD5 and TSS removal TN removal with TNT models Approval: November 7, 2012

Technology	Model(s)	Company	Technology Description	Approved Use
Sludgehammer Alternative Treatment System	Models: 5-46 & 5-86 <2,000 GPD	Sludgehammer Group Ltd 336 Division Road Petoskey, MI 49770	Septic Tank Aeration with Bacterial Augmentation	Restoration of failed SAS (BOD5 and TSS removal) <2,000 GPD Approval: April 2, 2015
Soilair	RF-3952TB, 3952MP, 5264MP, 5295MP, 9858MP, 15652MP, 21650MP, 29450MP <10,000 GPD	Geomatrix, LLC 114 Mill Rock Road East Old Saybrook, CT 06475	SAS Aeration	Restoration of failed SAS Approval: June 20, 2016
Subsurface Drip Wastewater Disposal System	Drip Disposal System MODELS: Geoflow WASTEFLOW Classic WF16-4-24, WF16-4-12, WF – Special Order and Geoflow WASTEFLOW PC WFPC16-4-24, WFPC16- 4-12.WFPC16-4-6, WFPC16-2-24, WFPC16-2-12, WFPC16-2-6 and WFPC-Special Order	Geoflow Inc. 500 Tamal Plaza, Suite 506 Corte Madera, CA 94925	Alternative SAS: Drip Irrigation	Equivalent to pressure distribution <10,000 GPD Approval: March 20, 2015
Waterloo Biofilter	Biofilter <10,000 GPD	Waterloo Biofilter System, Inc. 143 Dennis Street Rockwood, ONT, N0B 2K0	Secondary Treatment Unit: Trickling Filter	BOD ₅ and TSS removal Approval: November 5, 2012
White Knight Inoculator / Generator Alternative Treatment System	White Knight System	Knight Treatment Systems 281 County Route 51A Oswego, NY 13126	Septic Tank Aeration with Bacterial Augmentation	Restoration of failed SAS BOD5 and TSS removal <10,000 GPD Approval: June 9, 2015

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I/A Technologies with Nitrogen Reduction Credit

A number of the technologies listed above have received nitrogen reduction credit as part of their technology approvals:

General Use Certification

Recirculating Sand Filters - Generic (25 mg/L TN) up to 10,000 GPD

Ruck (19 mg/L TN) up to 2,000 GPD

MicroFAST (19 or 25 mg/L TN) up to 2,000 GPD - residential flows only

Provisional Use Approvals

Advantex

Amphidrome

Bioclere for flows less than 2,000 gpd*

FAST

Mod FAST

SeptiTech

Singulair

Waterloo Biofilter

Nitrex

* Bioclere has reached limit for installed systems less than 2,000 gpd.

Piloting Use Approvals

Bio Barrier MBR WWT System

Nitrex Plus

OMNI-Cycle System

OMNI Recirculating Sand Filter System

RID Phosphorus Removal System

RUCK CFT

Using a Technology Not Currently Approved for Use in Massachusetts

You have several options if you are interested in using a technology not approved for use by MassDEP:

- For new construction, the technology manufacturer can apply to MassDEP for Piloting Approval, Provisional Use Approval, or for General Use Certification. Once the technology use approval has been issued, you can apply for approval to install it on your property. See MassDEP's [Technology Approval Process for I/A Systems](#).
- You can apply to MassDEP for a site-specific approval to pilot a technology on your property. To pilot an I/A technology for new construction, including an increase in design flow, you must show that the property could support a conventional system; this provision provides for a back-up in case the piloted system fails.
- You can apply for a site-specific approval to pilot a technology on your property when it is used to replace an existing failed, failing or a nonconforming system, so long as there is no increase in design flow to the system.

For site-specific piloting, you must apply to both [your local Board of Health](#) and to MassDEP.

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